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GEOSPATIAL TECHNOLOGY AND APPLICATION OF LOCAL LEVEL URBANISATION ANALYSIS AND DEVELOPMENT WORD NO 13 IN THE JHARGRAM MUNICIPALITY WEST BENGAL

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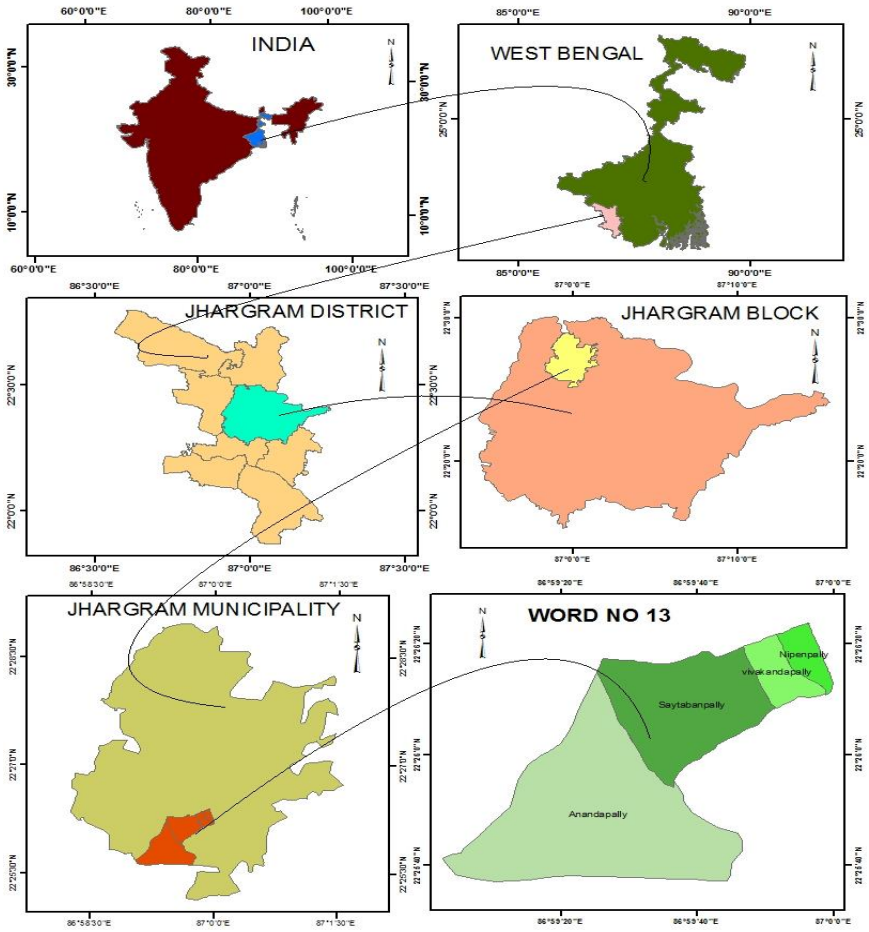
Abstract:
Geospatial technology and application of the principal Spatial Data Urban planning has the potential to contribute to planning in Town level government. The paper defines the object-based land use land cover, buffer zone in local essentials facilities area like bank, hospital, education, and groceries shops and road and drainage network, and population distribution of the study area. This simple and strong tool will assist the decision-makers to generate various urbanization planning and socio-economic views for identifying the village level suitable area. The paper also imagines the future development and usefulness of this community-level GIS tool for grass-root planning.
Keywords: Land use Land cover, Buffering zone of facility area, Road Network, Drainage Network, and Population Distribution**.**

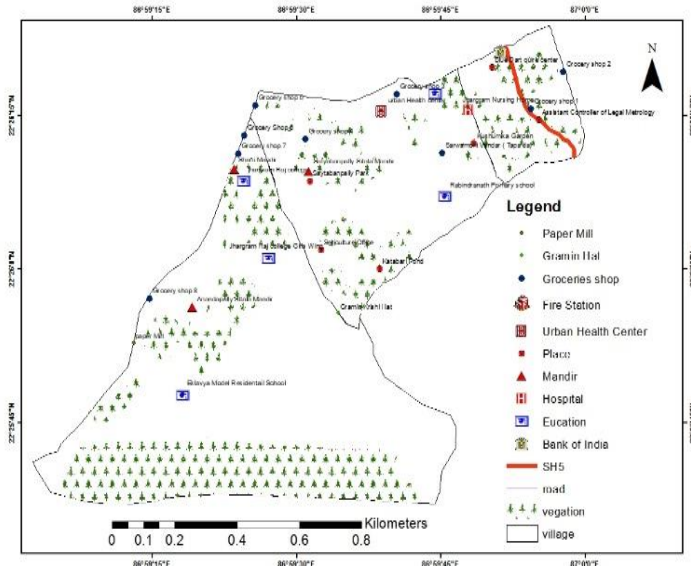
Introduction:
Urban planning is considered to be an important arm of urban development. Urban planning is a complex and dynamic process to synthesize diverse activities, perspectives, aspirations. Master Plans are important legal instruments for spatial planning of urban settlements. They tend to guide and regulate urban development in a planned manner. **(Adinarayana J, 2004)**These Plans are prepared for existing and new or for expanding existing settlements. Preparation of Master Plans with GIS technology intervention will fasten the process of preparing based maps and increases accuracy. The digital format will also facilitate interdepartmental coordination of services among line departments. Now day's Indian government ongoing project AMRUT (ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION) Ministry of Housing and Urban Affairs, Government of India **(Afnarius Surya S. M., 2020)**. Total 7935 towns or cities in India as per census 2011, only 1233 towns 15% approved master plan, master plans being formulated for 497 towns Jhargram town one of them. Ward no 13 in Jhargram town of West Bengal in India is of South Bengal which is located under the forest area. **(JHARGRAM, n.d.**)That word is Green and Clean which is known as the City of Nature.

Location and Identification:
The Word no 13 in Jhargram Municipality, West Bengal in India of South Bengal which is located under the Sal dense deciduous forest area. That word is Green and Clean which are divided into 4 villages such as Nipenpally, Vivekandapally, satyabanpally, and Annandapally. It is extension lies between 86º 59′20″E in the west to 87º 0′0″E in the east and 22º 26′20″ N in the South to 22º 26′ 40″N in the north. **(Fig 1)** It is established in 1982 and consists of 18wards word no 13 is one of them which distance from the capital of Kolkata is about 180 km and passes the South Eastern Railways that the Kharagpur –Tata section in the town. (**JHARGRAM, n.d**.)Jhargram town is located on the Howrah-Mumbai railway line and 155Km away from Kolkata and only 20 km away from the border of Jharkhand State and 15Km away from N.H.-6, known as AH – 46**(JHARGRAM, n.d.).**



Location Map: figure 1

BACKGROUND AND PRESENT STATUS: Ward no 13 in jhargramMunicipality is a special characteristics Geographical area of West Bengal. The town and this word are famous for the city of nature and or healthy place of Bengal India from 1922. Ward no 13 is



Ward Map: figure: 2

Situated in the southern part of Sadar Sub-divisional Municipality, Jhargram District of West Bengal, India. The Upper north part is the word no 12 which is divided by SH 5 and east side word no 11 and the west side word no no is 17 which is divided by jhargram jomboni road. Word no 13 is the paradise of nature lovers with bountiful forests of Sal, Mahul, The Raj collage, and Raj college girls' wing's,Sitala Temple which is situated is satyabanpally and Annandpally and soni temple, folk tunes and

rhythms of tribal make it all the more attractive destination of people who love to discover the unknown and unaffected beauties of nature[2]. It has an average elevation of 94 meters (309 feet). Surrounded by dense Sal and Mohua trees and carpeted in the red earth. .I have studied that the Succession of sedimentation and soil profile is prominent, it has been developed Gondwana and Carboniferous era. The Geographical area of the town has been developed by the lateralization process for a long time in the tertiary period. By the field investigation, we have observed that the lateritic sediment layer is exiting about three to five Meters. It is a zonal Lateritic soil profile. Quartzite, Mica Schist, Limestone, and Conglomerate are common rocks and minerals found here and there in the Geographical area. The study area 1st layer groundwater 95 – 110 feet by field survey.

Objectives:

- To study the Land use Land Cover Map and road network of ward no 13
- To Observation of ward no 13 urban sewage and Drainage system to impact of local people.
- To find out the existing Urban facilities area suitable buffer zone in a pandemic situation
- To analysis the population distribution and positive impact of the study area.

Methodology and Data Materials:

The methodology is adopted for this Assessment by collecting the information by Onsite visit, jhargram Municipality ward no 13 surveys, Enquiry, Observation, Perception study and collect data with the help of different scientific Instrument also secondary data.

Municipality Map	**Jhargram Municipality**
Road Network Map	**World imagery**
A drainage network map, other ancillary data	**Field Survey**
Population Data	**Census of India 2011**

Table No: 1

Method Systems:

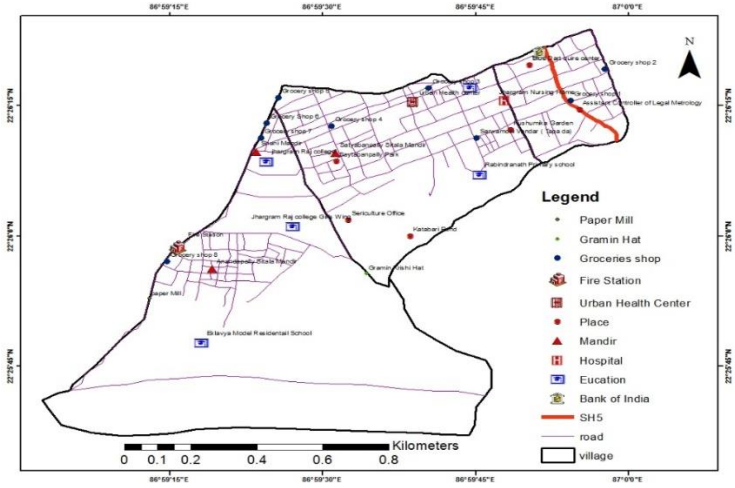
Land use and land cover:object-based land use land cover mapping using the ARC- GIS 10.3 Gis software.
Road Networking Mapping: The ward main road and other Municipality road digitized from the Network Map.
Facilities Area: ward Facilities spot actual location by the field survey buffering selected suitable areaarc gis-10.3
Land use Land Cover Map:

Land Use Land Cover Map figure: 3

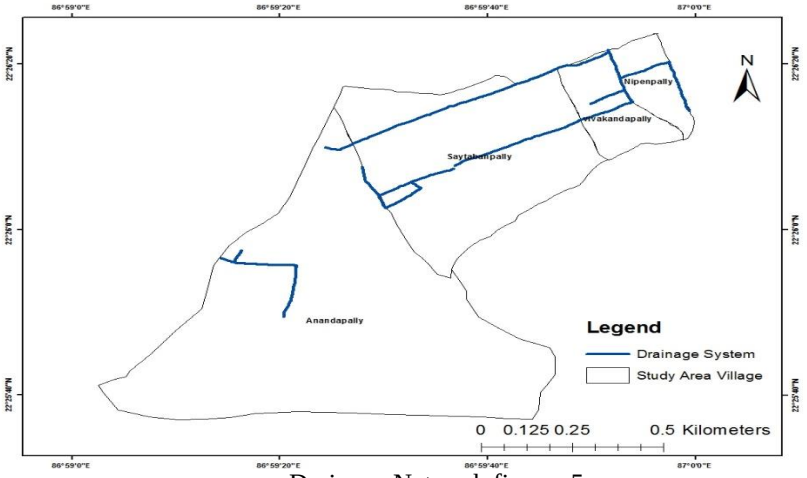
The total area of ward no 13 divided into four villages like Nippenpally, Vivakandapally, Satyabanpally, Annadapally, Many areas is a built-up area, the classification of land use cover map object-based method using high-resolution satellite image. Build up area is situated nipenpally, vivakandapally, and satyabanpally maximum and others are mixed up areas of this place. Mainly Fellow land and forest cover area which are situated anndapally area shout part of the word. The Forest area mainly are sal tree. Mixed up areas are sal and other trees.

Road Network and Drainage Network: the study area word no 13 in jhargram municipality. Road connectivity well all the village area. 90% of municipality road in ward no 13 are metal or cement road. The drainage network connected well but not sufficient the word no 13. SH 5 passing by the study area and all municipality major roads are connected to SH 5. One road SH5 bank of India to connect to janboni block road. Drainage network nipenpally area some are. And one drain is SH 5 to jhargram Nursing Home. And other big to the network are SH5 or bank of India to Jhargram Raj College. And SH5 to jhargram Raj

college Girls' wings. Besides the girl's college, some are drain connected. And anndapally some areas are well drainage connected.



Road Network Map Figure: 4



Drainage Network figure: 5

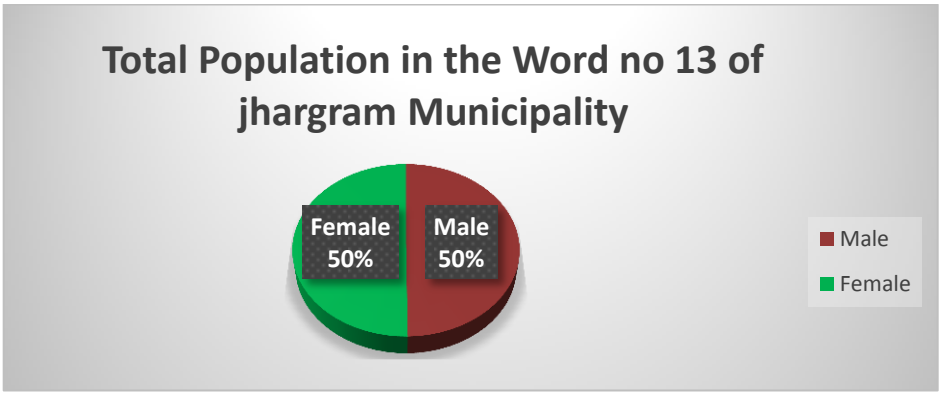
Population Distribution:

Total population

Total Population	Male	Female
6038	3005	3033

Table No: 2 (source census of India) 2011

The study area total population of 6038 persons according to the census 2011, Male population are 3005, and Female 3033 persons that are almost 50% male and 50% female of the total population. Mostly the population is satyabanpally and vivakandapally. This area of sex ratio is very good. The total female population are over the male population



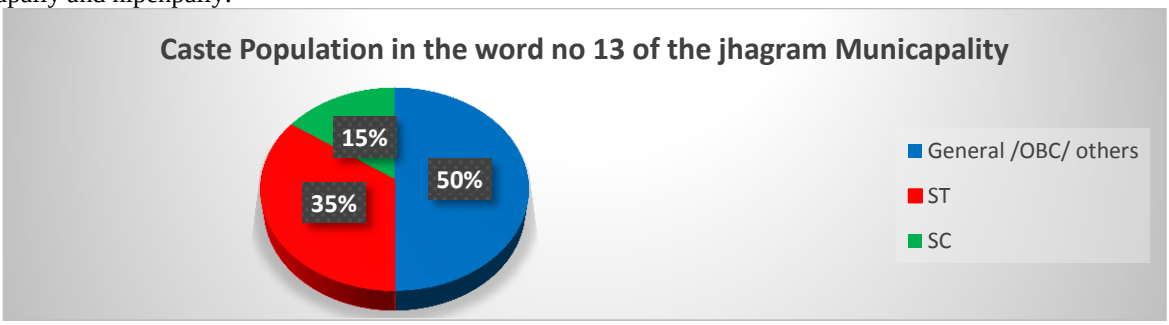
Total Population figure: 6

Caste Population:

Total Population	General /OBC/ others	ST	SC
6038	1796	1249	547

Table No: 3(source census of India) 2011

This word is the backward class area in jhargram municipality ST population 1249 and 35% of the total population and SC population are 574 and 15% of the total populationOther populations like as OBC-A and OBC- B, general are 50% of the total population.The ST population area mostly isannadapally and saytabanpally village area. Other castes are mostly are vivakandapally and nipenpally.



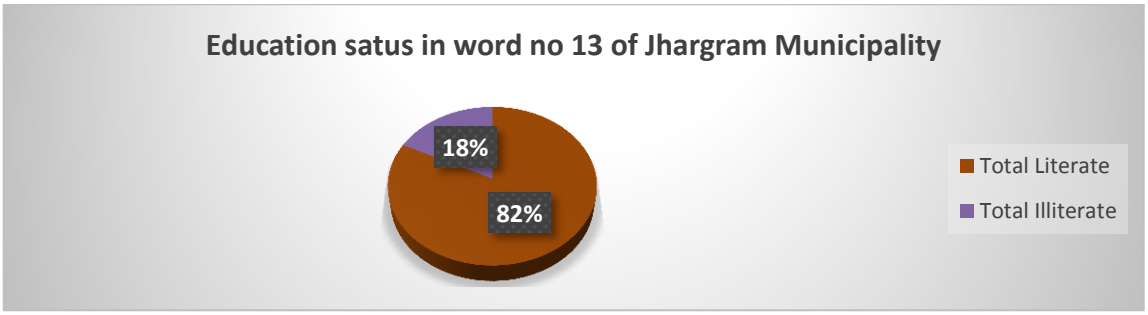
Caste Population Figure: 7

Education Status:

Total Literate	Total Illiterate
4971	1067

Table No: 4 (source census of India) 2011

This word is education status are moderately is 82% and illiterate persons are 18% according to the 2011 census. And male literate 48% and female literate 52% of the total population. Female literate is more than male literate. And male illiterate is 58% and female illiterate are 42%. The female illiterate population is less than the male population. Overall total female literate is very good.

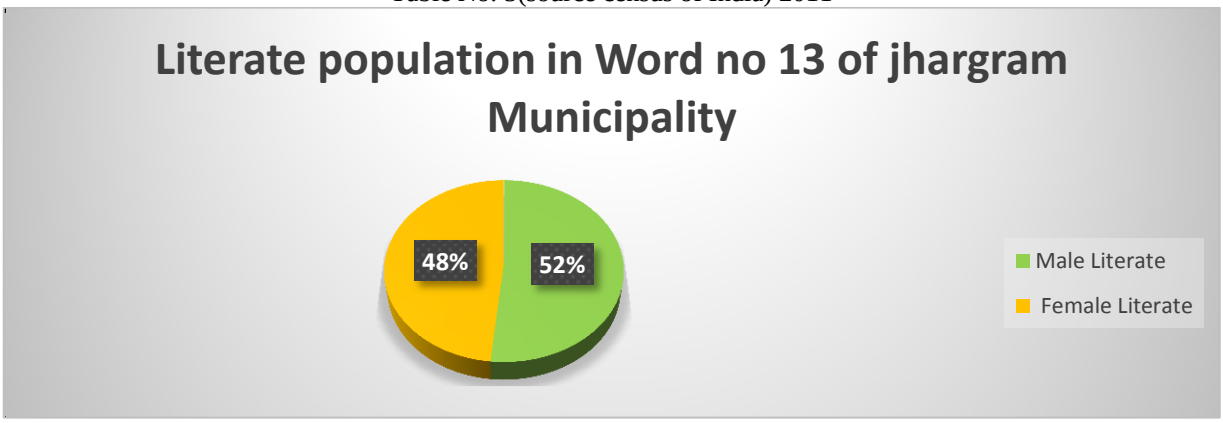


Education Status figure: 8

Literate:

Total Literate	Male Literate	Female Literate
4971	2567	2404

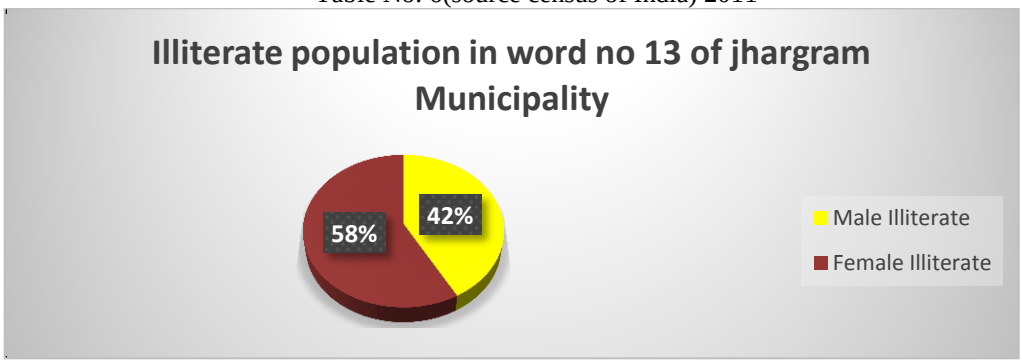
Table No: 5(source census of India) 2011



Literate Population Figure: 9

Total Illiterate	Male Illiterate	Female Illiterate
1067	438	609

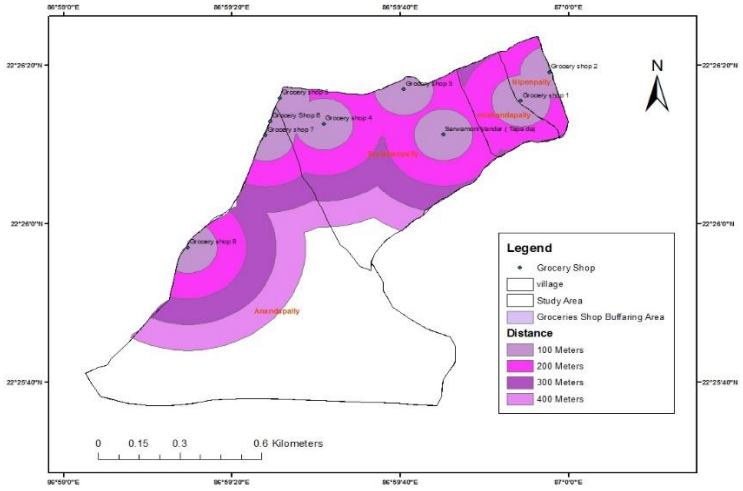
Table No: 6(source census of India) 2011



Illiterate Population: Figure 10

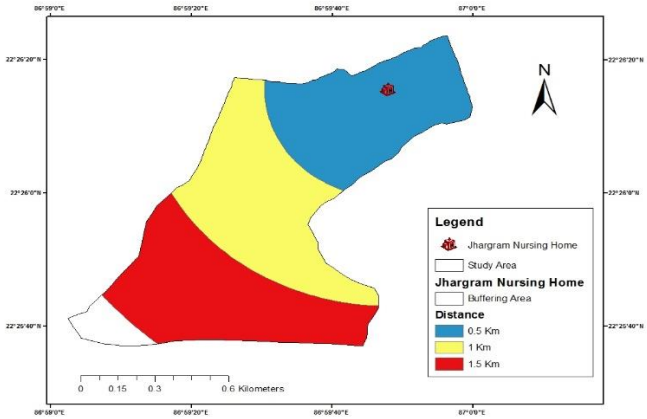
Result and Assessment:

This area discus and analysis that is the study area divided by 4 village nipenpally, vivakandapally, saytabanpally, and annadapally and total area 9 groceries shop and one bank and education center, SH 5 high road buffering zone selected satiable zone.



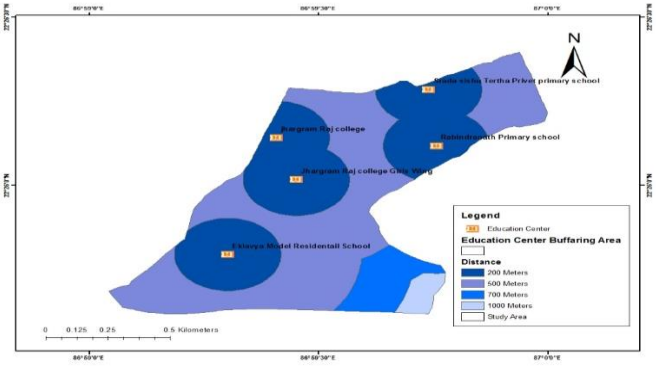
Groceries Shop Buffering Area figure: 11

There have many small and big groceries shop and stationery shops in this word the study area selected main are 9 grocery shops (fig 11).Nipenpally 1 main grocery shop and vivakandapally mainly 2 grocery shops one is SH 5 side and one is into the village middle that is popularly known as TAPA DA r dokhan.satyabanpally have mainly two groceries shop and most grocery shops have raj college roads. These grocery shops are buffering from 100 meters and 200 meters and 300 meters and 400 meters those groceries shop are suitable for village people. Near groceries shop, 100 meters are most suitable and 200 meters and 300 meters moderately suitable and 400 meters have less suitable for grocery shops.



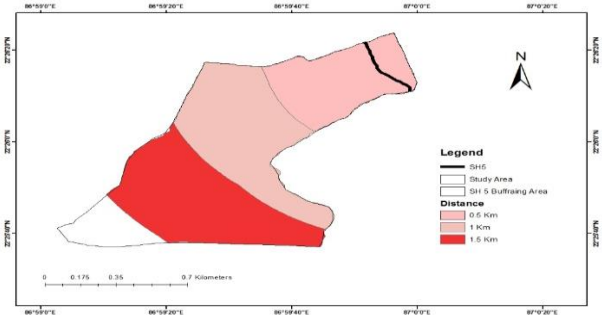
Hospital Buffering Area figure 12

Jhargram nursing home has vivakandapally in the word no 13 this the only one big private hospital for jhargram district. Hospital is very essential for good health for people. Jhargram nursing home is older known as Drsitanathdey r nursing home have buffering for 3 zones 0.5 km is most suitable and 1 km area is moderately suitable and 1.5 km are less satiable for the study area. (Fig 12) And one urban health center is located at satyabanpally.



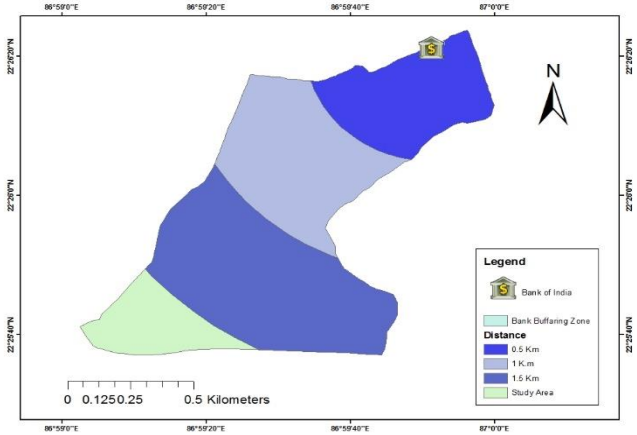
Educational Center Buffering Area: Figure 13

The study area has educational center two college one have jhargram raj college full government and one Women college full government of West Bengal. One high school only for ST students Ekalalvya Model Residential School, two primary schools one government Rabindranath primary school and one SaradaShishuThartha primary private primary school. Those are 4 buffering areas (fig 13)200 meters is a very suitable area, 500 meters and 700 meters are moderately suitable 1000 meters or 1 km less suitable for local village people for daily life.



SH 5 Buffering Area Figure: 14

SH 5 main roads have passed by in the word. This road is connected to the all municipality road. This is the main road of the jhargram town. This road is very essential for daily life for village local people. This road buffering and sleeted Three buffer area (fig 14) 0.5 km, 1 km, and 1.5 km and classification for the suitable area.



Bank Buffering area figure: 15

The bank is the most essential part of every people so bank nearly most suitable for village people one bank is Bank of India is situated in near the SH 5. The bank buffering zone (fig 15) 3 part 0.5 km, 1 km, 1.5 km, nearly area highly suitable and middle area is moderately suitable and farthest area is the low suitable area for the village word.

Conclusion:

An examination has been embraced in the ancestral arranged and semi metropolitan-based Jhargram Municipality in Jhargram locale in West Bengal State, India to create asset informatics to help the chiefs for decentralized arranging with a fundamental accentuation on the rustic turn of events. Major and huge ends arising out of this investigation are explained underneath the Village Level Information System, GIS can help in the age of various situations rapidly next to the treatment of spatial information.

The current examination coordinating the spatial town maps with non-spatial has exhibited its potential for grass-root level improvement arranging mulling over the neighborhood needs and limitations. It has additionally settled its helpfulness to the leaders in the region to create sees for decision-production at the neighborhood level. The primary end of this examination is that the improvement of a computerized base guide as a fundamental spatial foundation for a scope of GIS provincial applications is hard to accomplish in the short to medium term. The primary restrictions are an absence of energy about what GIS can and can't do, absence of assets and prepared staff, wasteful administrative cycles, absence of information, and absence of equipment and programming merchant uphold. Furthermore, it is proposed that little to medium scale GIS ventures are the most ideal alternative to present the GIS idea in the regions, to pick up the acknowledgment of the innovation. In such a manner, high goal satellite symbolism offers an occasion to acquire the essential spatial information foundation or advanced guide base needed to help little to medium scale country GIS in the future. The GIS application for these individual undertakings might be generally basic however may give significant advantages. For instance, different reasonable region basic offices community for nearby individuals everyday life and decidedly affected to climate urbanization quality just as to make Green and Healthy biological home for an occupant in the city of nature helps recognizeThe word no 13 is the best ward in the Jhargram region. There have all office communities accessible here like that emergency clinic, bank, instruction focus, well street availability, streetlamp are excellent, and popper drinking water flexibly for the town nearby individuals .this region seepage network respectably insufficient for town territory must be required. This makes the framework heartier regarding its correspondence with an assortment of clients. (1) Land use land cover planning arranging: Given that all townland use land cover object-based informatics are presently spatially a piece of a typically composed framework, various helpful mixes can be performed. And this area population distribution of local village (2) buffering zone basic nearby level office As far as provincial advancement arranging is concerned.

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